

ESCI 3101, Global Environmental Change, Fall 2014

Place and Times: Tuesday and Thursday, 12.30pm - 1.45pm, McEniry 117

Final Exam: Thursday December 11, 11.00am - 1.30pm

Prerequisite: Earth Sciences-Geography (ESCI 1101)

Instructor: Dr. Brian Magi, McEniry 232, 704-687-5917, Brian.Magi@uncc.edu

Office Hours: Tuesday – Thursday, 2:00pm – 3:00pm, and by appointment

Teaching Assistant: Thomas Winesett, McEniry 316, twineset@uncc.edu

Reading Selections: *Introduction to Modern Climate Change*, Andrew Dessler; *Global Warming: Understanding the Forecast*, David Archer; texts by James Hansen, Elizabeth Kolbert, and others.

Course Websites: moodle2 and clas-pages.uncc.edu/mesas/teaching/global-environmental-change/

Teaching Philosophy

I teach because I want to explore the role of science in our lives. Scientific thinking is an essential part of being human. It can crystalize your observations of the natural world, but also shape your community involvement by honing your skills as a critical thinker and problem solver. Science, whether or not you become a scientist, is a powerful pathway to becoming an engaged citizen of the world. To the future generations of critical thinkers, one scientist said: **“The world needs you. Badly.”**

Description

Global warming refers to the increase in global surface temperature that scientists have concluded is mainly attributable to human activities. Global warming, however, is a narrow part of the broader concept of global environmental change. Namely, scientists from around the world have shown that a warming planet disrupts nearly every aspect of the Earth system. Human systems, such as cities, water and food supplies, and geopolitical stability, are not exempt from this disruption. If left unchecked, the implications of the on-going climate change, which is induced mainly by human activities, are staggering.

The Earth’s climate is inherently a physical system, so science serves as a useful framework in the discussion of climate change. Science helps to understand past and present climate changes by answering the questions of how and why. Russell Nye pointed out, *“Nearly every leader of American thought agreed that science provided the best possible tool with which man might discover those fundamental laws and truths – in nature and human nature – on which progress depended.”*

Human activities are the main reason for present-day climate change, so the scientific evidence suggests that humanity has created a global problem. As a species, we deeply believe that problems have solutions, but as Albert Einstein said, *“We can't solve problems by using the same kind of thinking we used when we created them.”* In this course, we discuss climate change science, the societal and environmental impacts, and mitigation strategies. We have to understand the problem we created before we can solve it.

Objectives

1. Develop an understanding of the processes on Earth that affect the climate from a systems perspective
2. Be able to describe how greenhouse gases and climate are related
3. Synthesize the physical aspects of climate science with concepts related to adaptation and mitigation
4. Hone critical thinking skills through observations and problem solving

Course Components

Problem Sets/Response Papers Class participation is an important component of this course, and more generally, your education at UNC Charlotte. *Your overall success in this course is directly dependent on being an active listener and being engaged in the material.* Take advantage of this unique time in your life. Problem Sets will include some in-class work and some work you do at home. Response Papers will be short responses to the various readings and videos/multimedia presentations. Response Papers will be due about once every week via electronic submission using moodle2. Readings themselves will mainly be distributed electronically via moodle2 and/or Atkins course reserves website (password on moodle2): <http://library.uncc.edu/caos/coursereserve>

Exams There will be two midterm exams and a cumulative final exam. The dates for the midterm exams will be announced early in the semester. The day and time of the final exam are listed above.

Grades

Letter grades will be assigned according to the percentage of points earned for the assignments below. Percentage categories are 90-100, 80-89, 70-79, 60-69, 0-59 and earn A, B, C, D, F, respectively. Assignments must be turned in on time and exams must be taken as scheduled. I will accept assignments turned in early, but not late except under unusual circumstances.

<i>Description</i>	<i>Percent of grade</i>
Problem Sets/Response Papers	25%
Midterm Exams (2)	40%
Final Exam	35%

Course Outline

A general framework for the semester will be to discuss (1.) The changing climate system, (2.) Causes of past and present climate change, (3.) Impacts of global warming, and (4.) Strategies for mitigating the impacts of global warming and change.

Class Policies

No mobile devices of any sort may be used during class.

University Policies

Academic Integrity Students are responsible for knowing and following The Code of Student Academic Integrity and The Code of Student Responsibility. These can be found at <http://www.legal.uncc.edu/policies/ps-105.html> and <http://www.legal.uncc.edu/policies/ps-104.html> respectively. Standards of academic integrity will be enforced in this course. *Questions regarding the policies and enforcement of the policies should be addressed to me during class or during office hours.*

Accommodations UNCC abides by interpretations of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973 that stipulates no student shall be denied the benefits of an education “solely by reason of a handicap.” Disabilities covered by law include, but are not limited to, learning disabilities, hearing, sight or mobility impairments, and other health related impairments. This course will gladly provide accommodations for students with documented needs. If you feel you need an accommodation, please contact the Office of Disability Services, Fretwell 230, Phone 704-687-4355 for the necessary evaluation and documentation.

Diversity The University of North Carolina at Charlotte is committed to equality of educational opportunity and does not discriminate against applicants, students, or employees based on race, color, national origin, religion, sex, sexual orientation, age or disability. In keeping with this commitment, UNC Charlotte actively seeks to promote diversity in its educational environment through its recruitment, enrollment and hiring practices.